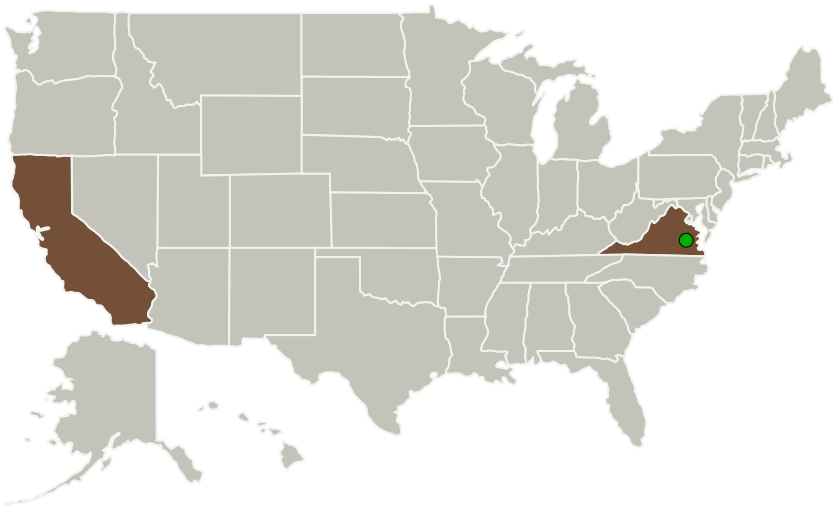
Reconfigurable Optical Velocimeter for Autonomous Structural Inspection in Space (ROVASIS), Phase I

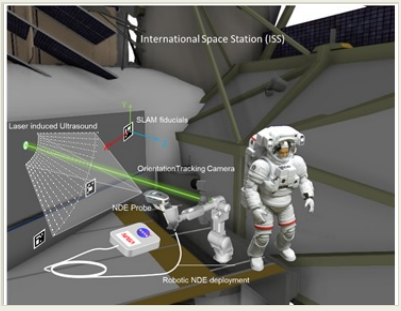
Completed Technology Project (2015 - 2015)

Project Introduction

In response to NASA solicitation H13.02 for Advanced NDE Techniques for spaceflight components and large complex structures, Advanced Systems and Technologies Inc. (AS&T Inc), propose a collaborative program which seeks to combine an advanced modular, smart sensor technology for rapid wide-area capture of ultrasound wave-field data with recent advances in NDE guided wave signal processing and to integrate these under a global tracking scheme that accurately determines the NDE sensor position and orientation, supporting data capture and registration on large space flight structures. The Reconfigurable Optical Velocimeter for Autonomous Structural Inspection in Space (ROVASIS), combined with remote laser-generated ultrasound excitation and narrow tone-band decomposition provide deep data sets for application of new spatio-temporal and spatio-spectral analyses to address a broad range of NDE functions pertinent to NASA spaceflight structures. Integrating fiber optic telecommunications technology with very large scale integrated electronics, ROVASIS is, in form and function, a sensor geared towards practical deployment of guided wave NDE, targeting multiple defect modalities in current and future complex spaceflight structures.

Primary U.S. Work Locations and Key Partners





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Organizations Performing Work	Role	Type	Location
Advanced Systems & Technologies, Inc.	Lead Organization	Industry	Irvine, California
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia

Primary U.S. Work Locations	
California	Virginia

Project Transitions

June 2015: Project Start

December 2015: Closed out

Closeout Summary: Reconfigurable Optical Velocimeter for Autonomous Structural Inspection in Space (ROVASIS), Phase I Project Image Reconfigurable Optical Velocimeter for Autonomous Structural Inspection in Space (ROVASIS), Phase I

Closeout Documentation:

- Final Summary Chart Image*(https://techport.nasa.gov/file/139391)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Advanced Systems & Technologies, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

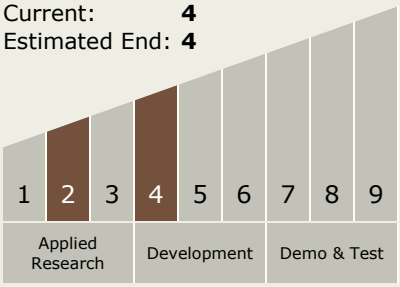
Carlos Torrez

Principal Investigator:

James M Kilpatrick

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



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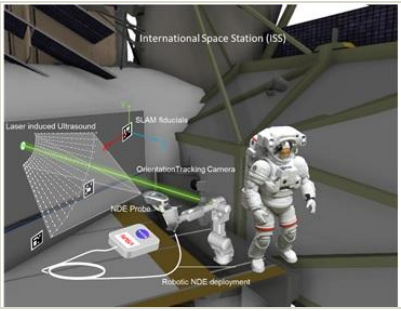
Images



Briefing Chart Image
Reconfigurable Optical Velocimeter for Autonomous Structural Inspection in Space (ROVASIS), Phase I
(https://techport.nasa.gov/image/129715)

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.3 In-Situ Instruments and Sensors
    - TX08.3.1 Field and Particle Detectors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System